

Computing at Minsterley



INTENT STATEMENT

- **Aims**
- At Minsterley Primary School we believe that learning is a change to long term memory. We intend to create knowledge through spaced repetition and backwards and forwards learning. Our curriculum is built around repeated opportunities to strengthen key concepts.

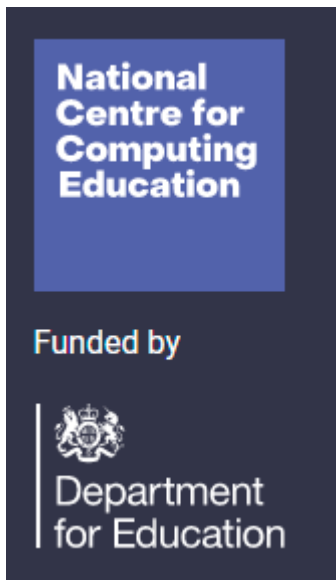
The Computing coordinator at Minsterley
Primary is Katie Wilcox

The Computing Curriculum



At Minsterley Primary School we use the Teach Computing Curriculum

The Teach Computing Curriculum is a comprehensive collection of materials produced to support teaching, facilitating the delivery of the entire English computing curriculum from key stage 1 to 4 (5- to 16-year-olds). The Teach Computing Curriculum was created by the Raspberry Pi Foundation on behalf of the National Centre for Computing Education (NCCE). Resources and planning have then been to the context of Minsterley Primary School.



Long Term Plan- Minsterley Primary School

		term	Clee	Wrekin	Lawley	Stiperstones	Long Mynd
Computing		Autumn	-Technology around us. -Digital Painting	-Technology around us. -Digital photography	-Computing systems and networks -Creating media	-Computing systems and networks -Creating media	-Computing systems and networks -Creating media
		Spring	-Moving like a robot. -Grouping data.	-Creating media -Data and Information	-Creating media -Data and information	-Creating media -Data and information	-Creating media -Data and information
		Summer	-Digital writing -Programming animations.	-Programming A -Programming B	-Programming A -Programming B	-Programming A -Programming B	-Programming A -Programming B

The Curriculum Design

Our Computing Curriculum is structured in units. For these units to be coherent, the lessons within a unit must be taught in order. However, across a year group, the units themselves do not need to be taught in order, with the exception of 'Programming' units, where concepts and skills rely on prior learning and experiences.

All learning outcomes can be described through a high-level taxonomy of ten strands, ordered alphabetically as follows:

- **Algorithms** — Be able to comprehend, design, create, and evaluate algorithms
- **Computer networks** — Understand how networks can be used to retrieve and share information, and how they come with associated risks
- **Computer systems** — Understand what a computer is, and how its constituent parts function together as a whole
- **Creating media** — Select and create a range of media including text, images, sounds, and video
- **Data and information** — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- **Design and development** — Understand the activities involved in planning, creating, and evaluating computing artefacts
- **Effective use of tools** — Use software tools to support computing work
- **Impact of technology** — Understand how individuals, systems, and society as a whole interact with computer systems
- **Programming** — Create software to allow computers to solve problems
- **Safety and security** — Understand risks when using technology, and how to protect individuals and systems

The taxonomy provides categories and an organised view of content to encapsulate the discipline of computing. Whilst all strands are present at all phases, they are not always taught explicitly.

Progression

Progression across key stages All learning objectives have been mapped to the National Centre for Computing Education's taxonomy of ten strands, which ensures that units build on each other from one key stage to the next.

Progression across year groups Within the Teach Computing Curriculum, every year group learns through units within the same four themes, which combine the ten strands of the National Centre for Computing Education's taxonomy. This approach allows us to use the spiral curriculum approach to progress skills and concepts from one year group to the next.

Primary themes	Computing systems and networks	Programming	Data and information	Creating media
Taxonomy strands	Computer systems	Programming	Data and information	Creating media
	Computer networks	Algorithms		Design and development
		Design and development		
	Effective use of tools			
	Impact of technology			
	Safety and security			

Spiral curriculum

The units for key stages 1 and 2 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years.

National Curriculum Coverage Key Stage 1

National Curriculum Coverage – Key Stage 1 Computing Curriculum	1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	1.4 Grouping data	1.5 Digital writing	1.6 Programming animations	2.1 Information technology around us	2.2 Digital photography	2.3 Robot algorithms	2.4 Pictograms	2.5 Making music	2.6 Programming quizzes
Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions			✓			✓			✓			✓
Create and debug simple programs			✓			✓			✓			✓
Use logical reasoning to predict the behaviour of simple programs			✓			✓			✓			✓
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓
Recognise common uses of information technology beyond school	✓		✓	✓			✓	✓				
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	✓				✓	✓	✓			✓		

National Curriculum Coverage Key Stage 2 (Year 3/4)

National Curriculum Coverage – Years 3 and 4

	3.1 Connecting computers	3.2 Stop-frame animation	3.3 Sequencing sounds	3.4 Branching databases	3.5 Desktop publishing	3.6 Events and actions in programs	4.1 The Internet	4.2 Audio editing	4.3 Repetition in shapes	4.4 Data logging	4.5 Photo editing	4.6 Repetition in games
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts			✓			✓			✓			✓
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	✓		✓			✓			✓	✓		✓
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs			✓			✓			✓			✓
Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	✓						✓					
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content					✓		✓	✓			✓	
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact							✓	✓			✓	

National Curriculum Coverage Key Stage 2 (Year 5/6)

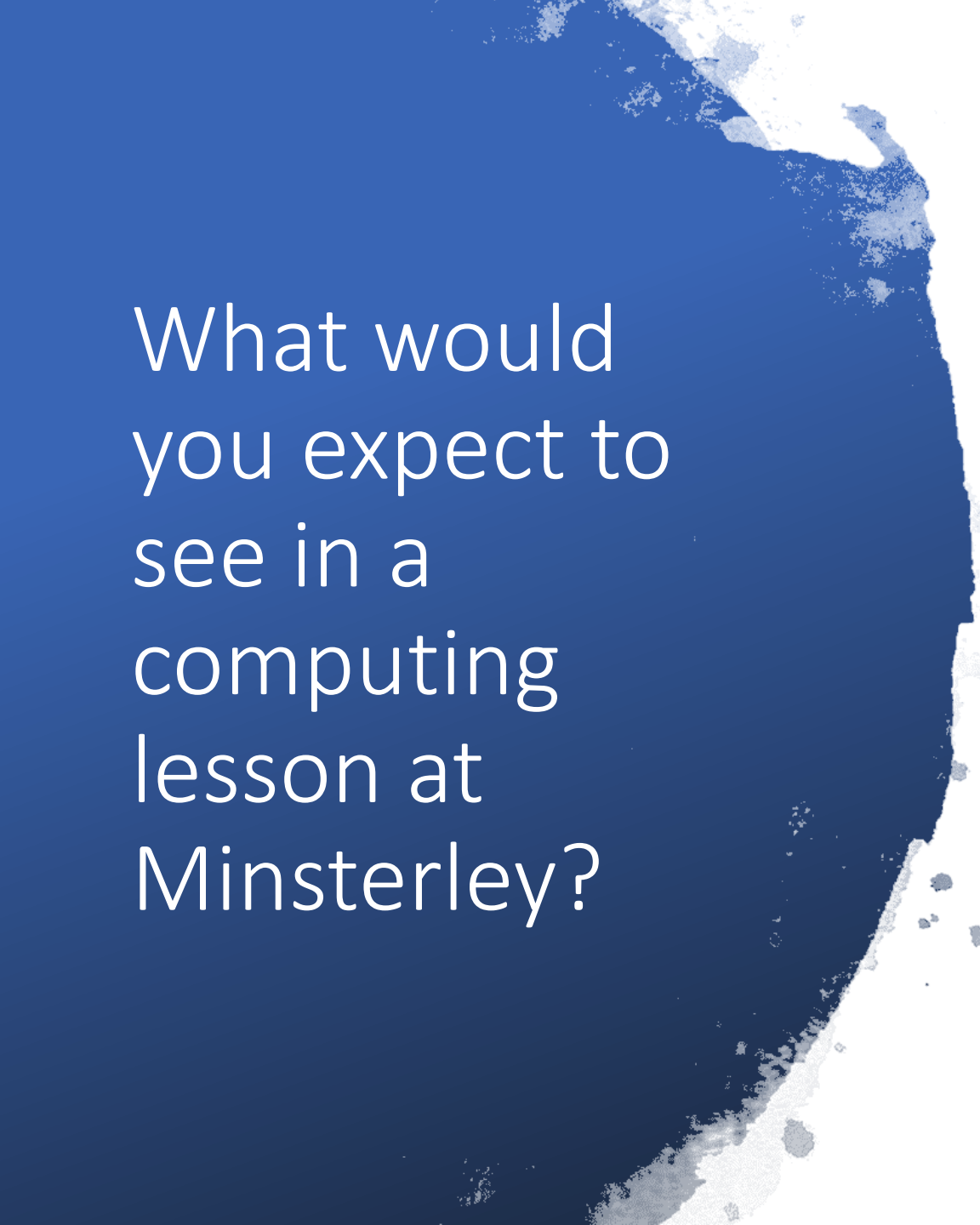
National Curriculum Coverage – Years 5 and 6	5.1 Sharing information	5.2 Video editing	5.3 Selection in physical computing	5.4 Flat-file databases	5.5 Vector drawing	5.6 Selection in quizzes	6.1 Internet communication	6.2 Webpage creation	6.3 Variables in games	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	✓		✓			✓	✓		✓			✓
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	✓		✓			✓			✓			✓
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs			✓			✓			✓			✓
Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	✓						✓					
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content		✓		✓			✓	✓				
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	✓	✓						✓	✓		✓	

Cross-curricular Links

At Minsterley we provide a high level of cross curricular links in computing to all areas of the curriculum. We have 32 chrome books in each Key Stage 2 classroom so that all children have a chrome book available to them throughout the day. We use this technology in all subjects through the use of Google Classroom. Below are listed some examples of how we use the technology throughout the curriculum:

- Typing, editing and improving in English using tools such as word processing.
- TTRS for multiplications and Numbots for Maths.
- Fiction express for guided reading.
- Digi Maps for Geography.
- Slideshows and google documents for History along with internet searches to find information.
- Data loggers are used in science.

All pupils in EYFS and KS1 have access to Ipads which they also use across the curriculum.



What would
you expect to
see in a
computing
lesson at
Minsterley?

- Independent and responsible learners
- Teaching in line with NC
- High expectations with good pace 'Teach to the top'
- Pitched in line with age expectations
- Opportunities to recap/revisit previous learning through 'I can still' , mini activities and even whole lessons if required.
- Following long term planning
- Whole class teaching.

Staff CPD





Assessment at Minsterley

At Minsterley Primary School we use teacher assessment throughout all computing lessons. There are planned opportunities for assessment at the end of each unit taught through the use of summative assessment questions and assessment rubrics.